

In the Specification

On page 1, immediately after the title, please amend the first paragraph as follows:

This is a continuation of U.S. Patent Application Serial No. 09/584,661, filed May 30, 2000, ~~the contents of which are hereby incorporated by reference in its entirety and~~ from which priority is claimed under 35 U.S.C. § 120.

Remarks

With the amendment to the specification, as required by the Examiner, the specification no longer states that the prior application is incorporated by reference.

The amendments to claims 1 and 9 find support in the specification, for example, at page 4, lines 20-23. No new matter is introduced by way of the amendments.

Claims 1-16 are pending in the application, and claims 1-16 stand rejected. Claims 1-4 and 7-8 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Blackburn, U.S. Patent No. 6,264,825 (hereafter "Blackburn"). Claims 5 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of U.S. Roelant, U.S. Patent No. 6,001,573 (hereafter "Roelant"). Claim 6 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Baselt, U.S. Patent No. 5,981,297 (hereafter "Baselt"). Claims 9-12 and 15-16 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Brown, U.S. Patent No. 5,807,522 (hereafter "Brown"). Claim 14 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Brown and further in view of Baselt. Claims 1-3, 6, 7, 9-11, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Baselt in view of Blackburn.

Applicants respectfully traverse these rejections, and submit that the present claims are not anticipated and are not obvious in view of the prior art.

The Rejections of Claims 1-4 and 7-8 under 35 U.S.C. § 102(e)

Claims 1-4 and 7-8 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Blackburn.

Blackburn is presented by the Examiner as discussing a method for increasing the hybridization rate of nucleic acids in a sample comprising attaching probe nucleic acid molecules of known sequence to a solid support, labeling nucleic acid target molecules

with paramagnetic beads, attracting the labeled targets to the solid support by activating a magnetic field, hybridizing the labeled target with their complementary pairs at a hybridization rate greater than the rate in the absence of the attracting field, washing the support and inverting the polarity of the magnetic field to remove unbound molecules and detecting the hybridized targets.

Anticipation under 35 U.S.C. § 102(e) requires that “every element of the claimed invention be identically shown in a single reference.” (*In re Bond*, 910 F.2d 831,832 (Fed. Cir. 1990)).

Applicants respectfully note that even after diligent study of the sections of Blackburn cited by the Examiner (column 6, lines 30-60; column 9, lines 31-61; column 21, lines 20-65; and column 38, lines 61 to column 39, line 13) and elsewhere in Blackburn, no mention of “inverting the polarity of the magnetic field o remove unbound molecules” could be found. Moreover, even after diligent study of column 14, line 41 to column 15, line 60 of Blackburn (cited by the Examiner with respect to original claim 3), no mention of a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II) was found.

As amended, claim 1 recites “attaching probe nucleic acid molecules of known sequence to a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II)” and “washing the support and inverting the polarity of the magnetic field to remove any unbound or nonspecifically bound molecules.”

As discussed above, applicants respectfully note that the cited reference lacks at least the elements mentioned in the preceding paragraph. Claims 2-4 and 7-8 include all the elements of claim 1, which requires the elements mentioned in the preceding paragraph. Lacking at least these elements of the claimed invention, applicants respectfully submit that the Blackburn does not anticipate claims 1-4 and 7-8.

Accordingly, applicants respectfully submit that the rejections to claims 1-4 and 7-8 under 35 U.S.C. § 102(e) are overcome.

The Rejections of Claims 5 and 13 under 35 U.S.C. § 103(a)

Claims 5 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Roelant.

Blackburn is described above. Roelant is presented by the Examiner as teaching a method similar to Blackburn, wherein the paramagnetic labels comprise paramagnetic porphyrins. However, applicants respectfully submit that Roelant does not teach or suggest the use of paramagnetic porphyrins to induce movement of particles in a magnetic field.

In order to establish a prima facie case of obviousness, there must be 1) some suggestion or motivation in the art or in the knowledge generally available to one of ordinary skill in the art, to modify or to combine the reference teachings; 2) there must be a reasonable expectation of success; and 3) the prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, and not based on the applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Rejected claims 5 and 13 depend from claim 1 and from claim 9, respectively. As amended, claim 9 recites "attaching nucleic acid target molecules of known sequence to a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II)" and "washing the support and inverting the polarity of the magnetic field to remove any unbound or nonspecifically bound molecules."

As discussed above, Blackburn lacks a number of the elements of claim 1. Similarly, Blackburn lacks a number of the elements of claim 9. Claims 5 and 13 require all the elements of claims 1 and 9, respectively, and so require elements not provided by the cited references. Moreover, the cited references provide no suggestion or motivation to provide the missing teachings. Lacking the missing teachings, and lacking any

suggestion or motivation to provide them, the cited references also fail to provide any reasonable expectation of success of such a combination.

Accordingly, the cited references lacking at least these elements required to make the claimed invention obvious, applicants respectfully submit that the rejections to claims 5 and 13 under 35 U.S.C. § 103(a) are overcome.

The Rejection of Claim 6 under 35 U.S.C. § 103(a)

Claim 6 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Baselt.

Blackburn is presented by the Examiner as discussed above. Baselt is presented as providing a method similar to that of Blackburn, in addition including a cleavable nucleic acid bead attachment.

However, the alleged teaching of Baselt does not provide the elements lacking from Blackburn. As discussed above, Blackburn lacks a number of the elements of claim 1, from which claim 6 depends, so that claim 6 requires all the elements of claim 1, and so requires elements not provided by the cited references. Moreover, the cited references provide no suggestion or motivation to provide the missing teachings. Lacking the missing teachings, and lacking any suggestion or motivation to provide them, the cited references also fail to provide any reasonable expectation of success of such a combination.

Accordingly, the cited references lacking at least these elements of the claimed invention, applicants respectfully submit that the rejection to claim 6 under 35 U.S.C. § 103(a) is overcome.

The Rejections of Claims 9-12 and 15-16 under 35 U.S.C. § 103(a)

Claims 9-12 and 15-16 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Brown et al. (U.S. Patent No. 5,807,522, hereafter “Brown”).

Blackburn is presented by the Examiner as discussed above. Brown is presented as providing a method similar to that of Blackburn, wherein the target is immobilized and the probe is labeled.

Rejected claims 9-12 and 15-16 depend from claim 9. As discussed above, amended claim 9 recites “attaching nucleic acid target molecules of known sequence to a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II)” and “washing the support and inverting the polarity of the magnetic field to remove any unbound or nonspecifically bound molecules.” Brown does not provide all the elements of claim 9, including not providing the elements discussed in the preceding sentence.

As discussed above, Blackburn lacks a number of the elements of claim 9. Claims 9-12 and 15-16 require all the elements of claim 9, and so require elements not provided by the cited references. Brown fails to supply the missing elements, lacking at least the element “attaching nucleic acid target molecules of known sequence to a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II).” Moreover, the cited references provide no suggestion or motivation to provide the missing teachings. Lacking the missing teachings, and lacking any suggestion or motivation to provide them, the cited references also fail to provide any reasonable expectation of success of such a combination.

Accordingly, the cited references lacking at least these elements required to make the claimed invention obvious, applicants respectfully submit that the rejections to claims 9-12 and 15-16 under 35 U.S.C. § 103(a) are overcome.

The Rejection of Claim 14 under 35 U.S.C. § 103(a)

Claim 14 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blackburn in view of Brown and further in view of Baselt.

Blackburn and Brown are presented by the Examiner as discussed above. Baselt is presented by the Examiner as providing a method similar to that of Blackburn and Brown, wherein paramagnetic particles are attached to nucleic acid molecules using cleavable conjugating molecules.

As discussed above, Blackburn and Brown lack a number of the elements of claim 9. Claim 14, which depends from claim 9, requires all the elements of claim 9, and so require elements not provided by the cited references. Baselt fails to supply at least the missing element of “attaching nucleic acid target molecules of known sequence to a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II).” Moreover, the cited references provide no suggestion or motivation to provide the missing teachings. Lacking the missing teachings, and lacking any suggestion or motivation to provide them, the cited references also fail to provide any reasonable expectation of success of such a combination.

Accordingly, the cited references lacking at least these elements required to make the claimed invention obvious, applicants respectfully submit that the rejections to claim 14 under 35 U.S.C. § 103(a) are overcome.

The Rejections of Claims 1-3, 6, 7, 9-11, 13 and 14 under 35 U.S.C. § 103(a)

Claims 1-3, 6, 7, 9-11, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Baselt in view of Blackburn.

Baselt and Blackburn are presented by the Examiner as discussed above. As discussed above, Baselt and Blackburn lack a number of the elements of claim 9.

Similarly, Baselt and Blackburn lack at least the element "attaching probe nucleic acid molecules of known sequence to a solid support that is or is coated with a metal selected from the group consisting of platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II)." Claims 1-3, 6, 7, 9-11, 13 and 14, which depend from claims 1 and 9, requires all the elements of claims 1 and 9, and so require elements not provided by the cited references.

Moreover, the cited references provide no suggestion or motivation to provide the missing teachings. Lacking the missing teachings, and lacking any suggestion or motivation to provide them, the cited references also fail to provide any reasonable expectation of success of such a combination.

Accordingly, the cited references lacking at least these elements required to make the claimed invention obvious, applicants respectfully submit that the rejections to claims 1-3, 6, 7, 9-11, 13 and 14 under 35 U.S.C. § 103(a) are overcome.

Conclusions

Applicants respectfully submit that all rejections and objections are overcome, and believe all claims to be in condition for allowance. Reconsideration and allowance of all pending claims is respectfully requested. Early notification of the allowance of the claims is respectfully requested.

The Commissioner is authorized to charge any fees, including any fees for extension of time, or credit overpayment to Deposit Account No. 08-1641 (Attorney Docket No.: 25527-0003C1).

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Respectfully Submitted,

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